

Self-esteem following noninvasive cosmetic procedures

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ABSTRACT

Background: Low self-esteem and life satisfaction are common reasons patients seek cosmetic procedures, which improve a patient's appearance with enhanced aesthetic appeal, balance, and proportion. **Objectives:** This study aimed to evaluate patient self-esteem following noninvasive cosmetic procedures in Riyadh, Saudi Arabia, and the primary motivations for seeking cosmetic procedures. **Material and methods:** This cross-sectional study was conducted in Riyadh, Saudi Arabia, in a population of male and female adults who underwent noninvasive cosmetic procedures using a self-administered questionnaire distributed online. The sample size was 411. We assessed participant self-esteem using the Rosenberg Scale. **Results:** The findings show that the primary motivation to undergo cosmetic procedures was to increase their perceived attractiveness level (71.8%) (n=295). Higher age was significantly associated with higher self-esteem ($P = 0.006$). The perceived importance of cosmetic procedures was associated with the reported self-esteem which is strategically significant ($P < 0.001$). **Conclusion:** Most patients undergoing noninvasive cosmetic procedures had high self-esteem. Our findings may provide adults considering noninvasive cosmetic surgery useful information on self-esteem following the procedures.

Keyword: Body image, Botulinum toxin, Cosmetic surgery, Self-esteem

1. INTRODUCTION

Cosmetic procedures, either invasive or noninvasive, have seen a recent increase in popularity (ASPS, 2018). Cosmetic procedures, methods, approaches, and concepts are primarily based on improving the individual's look with enhanced aesthetic appeal, balance, and proportion. Cosmetic procedures are also defined as the [maintenance], restoration or enhancement of one's physical appearance through surgical and medical techniques (Swami et al., 2009). Given that they target well-functioning areas, cosmetic procedures are considered elective. Cosmetic procedures consist of breast enhancement, facial contouring, skin rejuvenation, body contouring, and facial



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rejuvenation (Swami et al., 2008). Botulinum toxin type A (Botox), soft tissue filler, chemical peels, laser hair removal, and intense pulsed light treatment are among the top five noninvasive procedures, according to the American Society of Plastic Surgeons (ASPS)(ASPS, 2009).

Dermal filler is a minimally invasive procedure used for adding volume and fullness commonly to the cheeks and lips that have thinned because of aging. Skin rashes, redness, and bruising are common side effects of dermal filler, although undesirable effects rarely occur (Lafaille & Benedetto, 2010). Botox works to reduce dynamic wrinkles by blocking nerve signals in the injected muscles (Satriyasa, 2019). Other medical indications are neck spasms, excessive sweating, and chronic migraines (Almasri et al., 2019). Public access to this type of surgery has significantly increased because of advanced cosmetic technologies and celebrities' social media influence (Swami et al., 2008; Swift, 2012). The number of women seeking cosmetic surgery has risen considerably in the past few years (Furnham & Levitas, 2012).

Sociocultural stressors to comply with beauty standards have normalized the adoption of cosmetic surgery (Furnham & Levitas, 2012), especially for women but, to some degree, for men, too (Alharethy, 2017). Low self-esteem and life satisfaction are primary reasons for cosmetic surgeries (Furnham & Levitas, 2012). Consequently, better body perception has been shown to reduce appearance-related stress and enhance the quality of life. Enhanced appearance can improve self-esteem and influence the way others view the patient (Figuroa, 2003). Moreover, the numbers indicate that people searching for new methods of enhancing their bodies caused minimally invasive cosmetic procedures to rise nearly 200% since 2000 (ISAPS, 2011). According to ASPS, the frequency of invasive cosmetic procedures has remained steady since 2018, while 2019 marked the highest number of Botox injections. Unsurprisingly, noninvasive or minimally invasive procedures grew by 2% in 2019 (ASPS, 2009). Moreover, the International Society of Aesthetic Plastic Surgeons reported that Saudi Arabia ranks twenty-second in the world's top 25 countries with the highest cosmetic procedures rates (ISAPS, 2011). Nowadays, the estimated prevalence of acceptance of cosmetic procedures is 55.4% among women in Saudi Arabia (Almasri et al., 2019). Given the increasing prevalence and acceptance, noninvasive procedures continue to experience growth among people aged 30 to 29, and women comprise 92% of all cosmetic procedure recipients (ASPS, 2009).

Limited studies have assessed self-esteem after a patient receives a noninvasive cosmetic procedure despite the increase in such procedures in the Middle East, particularly in Saudi Arabia. This study aims to assess the self-esteem of patients who underwent noninvasive cosmetic procedures in Saudi Arabia.

2. MATERIAL AND METHODS

This cross-sectional study was conducted from September 2020 to March 2021. Men and women over the age of 18 who received noninvasive cosmetic operations in Riyadh, Saudi Arabia, were included in the study. If a patient was under the age of 18, did not complete the questionnaire, or did not offer informed consent to participate, they were eliminated from the study. The study design received ethical approval from the Imam Mohammad Ibn Saud Islamic University Institutional Review Board.

The sample size was 411. The data were collected via self-administered questionnaires distributed electronically through social media. The questionnaire assessed patient demographic information, history with cosmetic procedures, and satisfaction after noninvasive cosmetic surgery. We evaluated participant self-esteem using the Rosenberg Self Esteem (RSE) Scale (Rosenberg, 2008). This scale uses 10-items to measure global self-worth assessing both positive and negative feelings about the patient's sense of self. The respondent should indicate how strongly he or she agrees or disagrees with certain statements, where "Strongly Disagree" is assigned 1 point, "Disagree" is assigned 2 points, "Agree" is 3 points, and "Strongly Agree" is worth 4 points. The sum score of all 10 items comprise the self-esteem score, and higher scores indicate higher self-esteem (Rosenberg, 2015).

The approval to conduct this study was obtained from the Institutional Review Board (IRB) of Imam Mohammad Ibn Saud Islamic University (Project number 21-2021). The participants' consent to participate in the study was obtained before starting the questionnaire.

SPSS Statistics for Windows, Version 14.0, was used to analyze the data (Chicago, SPSS Inc.). Chi-square was used to attain a P-value between categorical data-dependent and independent, estimating the association where $P=0.05$ is considered significant.

3. RESULTS

Descriptive statistics

A total of 1098 respondents attempted the questionnaire. Of these, 429 (39.1%) reported undergoing a nonsurgical cosmetic procedure and completed the questionnaire. Eighteen respondents were left out of the analysis because they're under age of eighteen. The study sample included 411 respondents (4.38%; $n=18$) men and 95.6% ($n=393$) women). Respondents aged 18 to 30

years represented 82% (n=373) of the study sample. Most respondents were single 66.4% (n=273), and 29.7% (n=122) were married. Regarding education, 77.6% (n=319) of respondents had a bachelor's degree. Employees working in public and private sectors represented 28.5% (n=117) of the study sample, and students represented 35.8% (n=147). One-half of the respondents reported an average monthly income < 3000 SAR, while incomes of 3000 to 7000 SAR and > 7000 SAR were reported by 20% (n=82) and 30.4% (n=125) of the respondents, respectively (Table 1).

Table 1 Descriptive statistics for the study sample (N=411)

Demographic data	n (%)
Gender:	
Female	393 (95.6%)
Male	18 (4.38%)
Age group (years)	
18 - 30	337 (82.0%)
41 - 50	54 (13.1%)
> 50	20 (4.87%)
Marital status:	
Single	273 (66.4%)
Married	122 (29.7%)
Divorced	15 (3.65%)
Widowed	1 (0.24%)
Education level:	
Middle school or less	3 (0.73%)
High school	38 (9.25%)
Diploma	27 (6.57%)
Bachelor	319 (77.6%)
Post-graduate	24 (5.84%)
Employment:	
Employed (Public or Private sector)	117 (28.5%)
Freelance	21 (5.11%)
Housewife	42 (10.2%)
Retired	14 (3.41%)
Student	147 (35.8%)
Unemployed	70 (17.0%)
Monthly income (SAR):	
< 3000	204 (49.6%)
3000 - 7000	82 (20.0%)
> 7000	125 (30.4%)

More than half of the respondents reported 1 to 2 previous nonsurgical cosmetic procedures, and 21.2% (n=87) reported 3 to 5 procedures. The previous nonsurgical cosmetic operation's timing varied between respondents with 22.6% (n=93) of the respondents reporting recent exposure (within the last month). One-quarter of the respondents reported having the last nonsurgical cosmetic procedure within the previous 3 months. The remaining participants reported having the last nonsurgical cosmetic procedure within the previous six (16.8%; n=69) and twelve (35.5%; n=146) months. Dermatologists performed 49.1% (n=202) of the procedures, and plastic surgeons performed 20.9% (n=86) of the procedures. Most respondents (78.8%; n=324) reported higher confidence after cosmetic procedures. Responses regarding the importance of cosmetic procedures showed varying opinions. The primary motivation to undergo cosmetic procedures was to increase their perceived attractiveness level (71.8%; n=295). Most respondents (87.8%; n=361) agreed that social media had increased a desire for cosmetic procedures. The average self-esteem score was 21.2 ± 5.87 , which was higher than the suggested threshold for low self-esteem based on the Rosenberg Self Esteem Scale (Table 2).

Table 2 Exposure to nonsurgical cosmetic procedures and self-esteem score (N=411)

Questionnaire data	n (%)
Number of previous nonsurgical cosmetic procedures	
1 to 2	271 (65.9%)
3 to 5	87 (21.2%)
6 to 10	33 (8.03%)
> 10	20 (4.87%)
Time since last nonsurgical cosmetic procedure	
Previous month	93 (22.6%)
Previous 3 months	103 (25.1%)
Previous 6 months	69 (16.8%)
Previous 12 months	146 (35.5%)
The specialty of the physician who performed the last cosmetic procedure	
Plastic surgeon	86 (20.9%)
Dermatologist	202 (49.1%)
Other	56 (13.6%)
I do not know	67 (16.3%)
Confidence increased after cosmetic procedures	
No	87 (21.2%)
Yes	324 (78.8%)
Important of cosmetic procedures	
Not important, and can do without it	115 (28.0%)
Somewhat important	160 (38.9%)
Very important	136 (33.1%)
Motivation to undergo cosmetic procedures	
Desire to change and increase the attractiveness	295 (71.8%)
Ads on social media	31 (7.54%)
Friends and family	85 (20.7%)
Social media has a role in increased people's desire for cosmetic procedures	
No	50 (12.2%)
Yes	361 (87.8%)
Self-esteem score	21.2 (5.87)

We found a high self-esteem score among the respondents. We found that 67% to 95% of respondents reacted in the positive to positively worded questions, and 66% to 82% reacted in the negative to negatively worded questions (Figure 1). Laser hair removal was performed by 65.5% of the respondents, and filler injection was reported by 34.5%. Peeling and Botox injections were performed by 20.2% and 23.1% of the respondents who underwent nonsurgical cosmetic procedures (Figure 2).

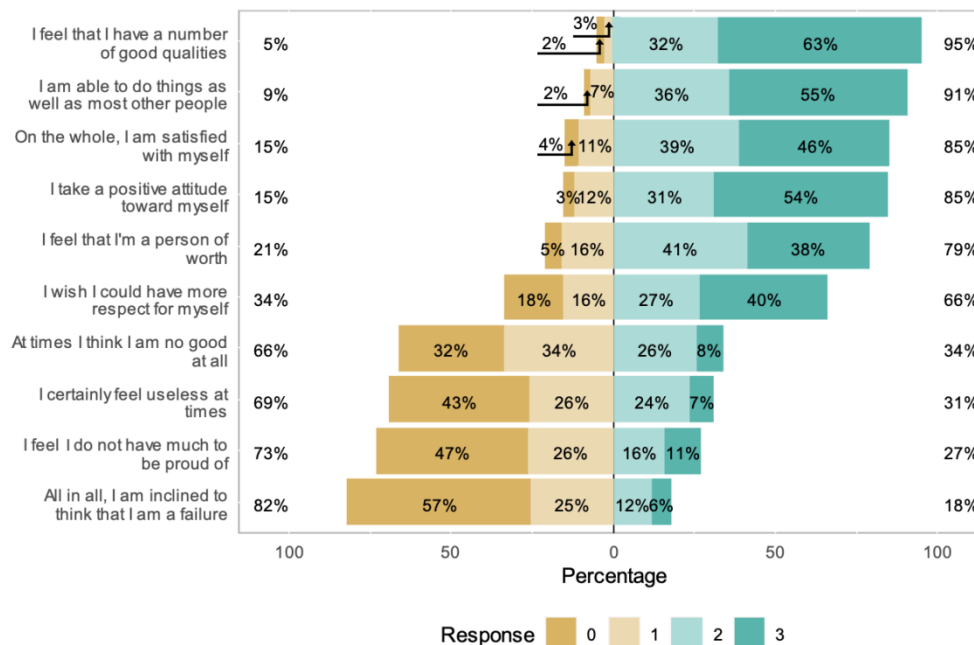


Figure 1 Descriptive statistics for the RSE scale

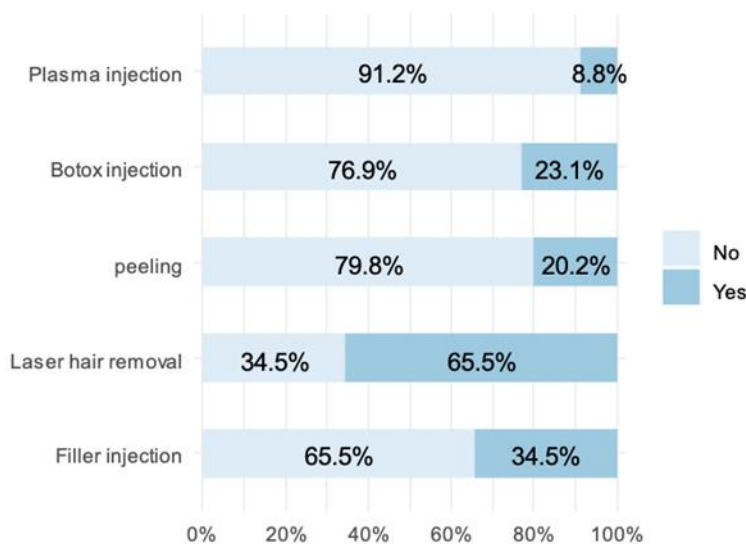


Figure 2 Summary of non-surgical cosmetic procedures

Validation of the RSE scale

Exploratory factor analysis indicated that a two-factor structure was a good fit for the data. Confirmatory factor analysis was then performed to assess the model's reliability, validity, and fit (Figure 3). The standardized regression coefficients were 0.5 or higher for all items of the RSE scale. The two-factor model provided a good fit for the data after the negatively worded items were reversed. Item 8 was the only one with a loading of < 0.5 . Between the latent variables, there was a statistically significant association ($r = 0.66$, $P < 0.001$). The model was a good fit for the data, as shown by the comparative fit index and Tucker-Lewis Index (0.957 and 0.943, respectively). The upper limit for the 95% confidence interval for the root mean square error of approximation was 0.08, which was considered acceptable. The average variance extracted was approximately 0.5 for both scales (0.5 and 0.45 for the positively and negatively worded items, respectively). The reliabilities of both scales were 0.84 and 0.79, respectively.

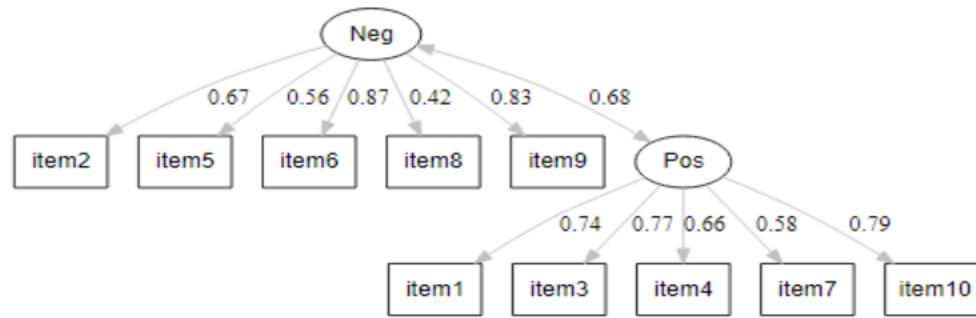


Figure 3 confirmatory factor analyses for the RSE scale

Factors associated with self-esteem

Sixty-four (15.6%) respondents reported low self-esteem. We used the Chi-square test of independence to assess factors associated with normal or high self-esteem (RSE score > 15).

Table 3 Factors associated with self-esteem

	Low (n=64) n, (%)	High (n=347) n, (%)	P-Value
Age group (years)			0.006
18 - 30	61 (18.1%)	276 (81.9%)	
41 - 50	2 (3.70%)	52 (96.3%)	
> 50	1 (5.00%)	19 (95.0%)	
Gender:			0.330
Female	63 (16.0%)	330 (84.0%)	
Male	1 (5.56%)	17 (94.4%)	
Marital status:			0.017
Single	52 (19.0%)	221 (81.0%)	
Married	10 (8.20%)	112 (91.8%)	
Other	2 (12.5%)	14 (87.5%)	
Education level:			0.182
Bachelor	48 (15.0%)	271 (85.0%)	
Middle school or less	1 (33.3%)	2 (66.7%)	
High school	5 (13.2%)	33 (86.8%)	
Diploma	8 (29.6%)	19 (70.4%)	
Post-graduate	2 (8.33%)	22 (91.7%)	
Employment:			0.007
Employed (Public or Private sector)	9 (7.69%)	108 (92.3%)	
Freelance	2 (9.52%)	19 (90.5%)	
Housewife	6 (14.3%)	36 (85.7%)	
Retired	0 (0.00%)	14 (100%)	
Student	30 (20.4%)	117 (79.6%)	
Unemployed	17 (24.3%)	53 (75.7%)	
Monthly income (SAR):			0.018
< 3000	42 (20.6%)	162 (79.4%)	
3000 - 7000	10 (12.2%)	72 (87.8%)	
> 7000	12 (9.60%)	113 (90.4%)	

Number of previous nonsurgical cosmetic procedures have			0.219
1 to 2	45 (16.6%)	226 (83.4%)	
3 to 5	16 (18.4%)	71 (81.6%)	
6 to 10	2 (6.06%)	31 (93.9%)	
> 10	1 (5.00%)	19 (95.0%)	
Timing of the last nonsurgical cosmetic procedure			0.873
Previous month	15 (16.1%)	78 (83.9%)	
Previous 3 months	18 (17.5%)	85 (82.5%)	
Previous 6 months	11 (15.9%)	58 (84.1%)	
Previous 12 months	20 (13.7%)	126 (86.3%)	
The specialty of the physician who performed the last cosmetic procedure			0.171
Plastic surgeon	14 (16.3%)	72 (83.7%)	
Dermatologist	28 (13.9%)	174 (86.1%)	
Other	6 (10.7%)	50 (89.3%)	
I don't know	16 (23.9%)	51 (76.1%)	
Perceived importance of cosmetic procedures			<0.001
Not important, and I can do without it	6 (5.22%)	109 (94.8%)	
Somewhat important	23 (14.4%)	137 (85.6%)	
Very important	35 (25.7%)	101 (74.3%)	
Type of procedure			
Filler injection:	19 (13.4%)	123 (86.6%)	0.455
Laser hair removal:	42 (15.6%)	227 (84.4%)	1.000
Peeling:	18 (21.7%)	65 (78.3%)	0.121
Botox injection:	11 (11.6%)	84 (88.4%)	0.288
Plasma injection:	6 (16.7%)	30 (83.3%)	1.000

Higher age was associated with higher self-esteem ($P = 0.006$). The prevalence of high self-esteem was higher in respondents aged 41 to older than 50 years compared to respondents aged 18 to 30. There was no statistically significant ($P = 0.330$) association between the gender and perceived self-esteem. Marital status showed a statistically significant ($P = 0.017$) association with self-esteem. High self-esteem was reported in 91.8% ($n=112$) and 87.5% ($n=14$) of married and other respondents, respectively, than single respondents. Education level did not show a statistically significant ($P = 0.182$) association with self-esteem, while unemployment was associated with a lower prevalence of high self-esteem (75.7%; $n=53$). Monthly income showed a statistically significant ($P = 0.018$) association with self-esteem. Respondents who earned > 7000 and 3000 to 7000 SAR had a higher prevalence of high self-esteem compared to respondents who earned < 3000 SAR ($P = 0.018$). The history of previous nonsurgical cosmetic procedures was not associated with self-esteem ($P = 0.219$). The time since the last nonsurgical cosmetic procedure was also not associated with the perceived self-esteem ($P = 0.873$). The perceived importance of cosmetic procedures was associated with the reported self-esteem ($P < 0.001$). The prevalence of high self-esteem showed a consistent decrease with the increase in the perceived importance of cosmetic procedures. The type of surgical procedure did not show a statistically significant association with perceived self-esteem (Table 3).

4. DISCUSSION

Attractiveness and self-perception influence the way people behave and certain traits such as self-confidence and social acceptance (Sadick, 2008). Recognizing the factors that affect self-esteem following cosmetic surgeries can help health care providers understand why people seek cosmetic surgeries and predict likely self-esteem outcomes after the procedures (Akhlaghi et al., 2015). Marital status was statistically significantly associated with self-esteem, which aligns with several studies that reported the association between marital status and self-esteem. Yin et al. found that cosmetic procedures for young married women were less desirable because there were fewer potential social or marital benefits to the procedures after marriage (Yin et al., 2016). A study conducted in Saudi Arabia found that most of those who underwent cosmetic procedures were single, followed by married women (Castle et al., 2002).

The type of surgical procedure did not show a significant association with perceived self-esteem, indicating that the effects of cosmetic surgery on body image and self-esteem are essentially equal for different types of noninvasive cosmetic procedures. Most of our respondents noted that social media has a significant role in increasing the desire for cosmetic procedures. According to Furnham et al., (2012) increasing media exposure to cosmetic surgery through television shows, television viewing time, and religion were all significant predictors of the chance of getting cosmetic surgery. Castle et al., (2002) highlighted the importance of reviewing past cosmetic interventions, including the number of previous procedures and their cosmetic and psychosocial outcome as perceived by the patient, family, and friends. More than half of our study respondents reported 1 to 2 previous nonsurgical cosmetic procedures, and 21.2% reported 3 to 5 previous procedures. Monthly income showed a statistically significant association with self-esteem, and no previous studies have examined the relationship between self-esteem and monthly income.

Limitations

This study has several limitations. First, nearly all patients were a woman, which classically reflects the demographic most seen in clinical practice for cosmetic services. Second, the sample size of the analyses may not be sufficient to ensure the statistical significance level. Moreover, this study used an online questionnaire, which may affect our results due to recall bias and response bias regarding our primary outcomes of assessing self-esteem following cosmetic surgery.

5. CONCLUSION

This study assessed patient self-esteem after noninvasive cosmetic procedures in Saudi Arabia. Most patients undergoing noninvasive cosmetic procedures had high self-esteem. Our results demonstrate that there is not statistically significant ($P = 0.219$) association between the history of previous nonsurgical cosmetic procedures and self-esteem, and the perceived importance of cosmetic procedures was associated with the reported self-esteem. Further studies are needed to assess patient self-esteem following noninvasive cosmetic procedures. However, our findings may provide adults considering noninvasive cosmetic surgery useful information on self-esteem following the procedures.

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Contribution of authors

All Authors contributed to all aspects of the study.

Data and materials availability

All data associated with this study are present in the paper.

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